CLAIMS:

1. A semiconductor processing method comprising:

forming an antireflective material layer over a substrate;

annealing at least a portion of the antireflective material layer at a temperature of greater than about 400° C;

forming a layer of photoresist over the annealed antireflective material layer;

patterning the layer of photoresist; and

removing a portion of the antireflective material layer unmasked by the patterned layer of photoresist.

2. The method of claim 1 wherein the antireflective material layer comprises a stack of layers.

3. The method of claim 1 wherein the antireflective material layer consists of one substantially homogenous layer.

4. The method of claim 1 wherein the layer of photoresist is formed against the antireflective material layer.

5. A semiconductor processing method comprising:

forming an antireflective material layer over a substrate;

annealing the antireflective material layer at a temperature of greater than about 400° C;

forming a layer of photoresist over the annealed antireflective material layer; and

exposing portions of the layer of photoresist to radiation waves, some of the radiation waves being attenuated by the antireflective material during the exposing.

6. The method of claim 5 wherein the attenuation comprises absorbing radiation waves with the antireflective coating.

7. The method of claim 5 wherein the layer of photoresist is formed against the antireflective material layer.

8. The method of claim 5 wherein the annealing temperature is greater than about 800° C.

9. The method of claim 5 further comprising exposing the antireflective material layer to a nitrogen-containing atmosphere during the annealing.

10. The method of claim 5 wherein the antireflective material layer comprises oxygen, nitrogen and silicon.

11. The method of claim 5 wherein the antireflective material layer comprises from about 5% to about 37% (by atomic concentration) oxygen, from about 10% to about 35% (by atomic concentration) nitrogen, from about 50% to about 65% (by atomic concentration) silicon, and hydrogen.

12. The method of claim 5 wherein the annealing temperature is from about 800° C to about 1050° C, and wherein the antireflective material layer comprises from about 5% to about 37% (by atomic concentration) oxygen, from about 10% to about 35% (by atomic concentration) nitrogen, from about 50% to about 65% (by atomic concentration) silicon, and hydrogen.

13. A semiconductor processing method comprising;

forming a solid antireflective material layer over a substrate;

altering optical properties of the antireflective material layer;

after altering the optical properties, forming a layer of photoresist over the antireflective material layer; and

exposing portions of the layer of photoresist to radiation waves and absorbing some of the radiation waves with the antireflective material.

14. The method of claim 13 further comprising exposing the antireflective material layer to an atmosphere during the altering, the atmosphere comprising at least one of nitrogen and argon.

15. The method of claim 13 wherein the optical properties which are altered include at least one of an "n" coefficient or a "k" coefficient.

16. The method of claim 13 wherein the altering comprises annealing the antireflective material layer at a temperature greater than about 400° C.

17. The method of claim 13 wherein the altering comprises annealing the antireflective material layer at a temperature greater than 800° C.

18. The method of claim 13 wherein the altering comprises annealing the antireflective material layer at a temperature of from about 800° C to about 1050° C, and wherein the antireflective material layer comprises from about 5% to about 37% (by atomic concentration) oxygen, from about 10% to about 35% (by atomic concentration) nitrogen and from about 50% to about 65% (by atomic concentration) silicon.

19. A semiconductor processing method comprising;

chemical vapor depositing an antireflective material layer onto a semiconductive material substrate at a temperature of from about 300° C to about 400° C;

annealing the solid antireflective material layer at a temperature of from about 800° C to about 900° C to alter at least one of an "n" coefficient or a "k" coefficient of the antireflective material layer;

forming a layer of photoresist over the annealed antireflective material layer;

exposing portions of the photoresist to radiation waves while leaving other portions of the photoresist unexposed and absorbing some of the radiation waves with the antireflective material; and

selectively removing either the exposed or unexposed portions of the photoresist while leaving the other of the exposed and unexposed portions over the substrate.

20. The method of claim 19 wherein the antireflective material layer comprises oxygen, nitrogen and silicon.

~~21. The method of claim 19 wherein the antireflective material layer comprises from about 5% to about 37% (by atomic concentration) oxygen, from about 10% to about 35% (by atomic concentration) nitrogen, from about 50% to about 65% (by atomic concentration) silicon, and hydrogen.~~

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